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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,445	12/09/2004	Toshihiro Nishii	2004-1930A	8623

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WASHINGTON, DC 20006-1021

EXAMINER

NGUYEN, DONGHAI D

ART UNIT	PAPER NUMBER
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3729

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/517,445	Applicant(s) NISHII ET AL.	
	Examiner Donghai D. Nguyen	Art Unit 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Amendment filed on January 18, 2007 has been fully considered and made of record.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4,470,858 to McMaster.

McMaster discloses a method, comprising: transferring a first sheet (22/310, see Figs. 5 and 24), which extends in a first direction (long-side direction), in a second direction (right to left), so that the first direction of the first sheet is parallel to the second direction (see figs. 24-25); and sticking films (30, 30a, 300, 302) onto both surfaces of the first sheet while transferring the first sheet in a third direction orthogonal (vertical) to the first direction of the first sheet (see figs. 24-25).

Regarding claim 10, McMaster discloses the first sheet (22/310) has a side which extends in the first direction (see Figs. 5 and 24).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of US Patent 6,425,969 to van den Akker.

Regarding claim 1, AAPA discloses a method of manufacturing a circuit board, comprising: transferring a first sheet (13), which extends in a first direction (202), in a second direction (201), so that the first direction of the first sheet is parallel to the second direction (see Fig. 6); and sticking films (14) onto both surfaces of the first sheet (see Fig. 7). However, AAPA does not teach transferring the first sheet in a third direction orthogonal to the first direction of the first direction of the first sheet. Van den Akker teaches the step of transferring the first sheet (9) in a third direction (left-right) orthogonal to the first direction (down-up) of the first sheet (9, see Figs. 3 and 12) while attaching the first sheet (9) to another sheet in transverse direction for forming a laminate structure having uniform thickness (See Col. 6, lines 10-14) and strong bonding between layers (see Col. 7, line 55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the AAPA by utilized the transferring first sheet in the third direction orthogonal to the first direction of the first sheet as taught by Van de Akker to obtain a circuit board having uniform thickness.

Regarding claim 2, AAPA discloses sticking the films (14) comprises pressing the films on the first sheet with a heated roller (15) while transferring the first sheet in the third direction.

Regarding claims 3 and 4, AAPA discloses impregnating a reinforcing member of woven fabric (fiber sheet or glass cloth 11) with impregnation material (12) while transferring the reinforcing member in the second direction (201) so as to provide the first sheet (13), the reinforcing member having a direction corresponding to the first direction (202) of the first sheet, the direction of the reinforcing member being parallel to the second direction.

Regarding claim 5, AAPA discloses forming a via-hole (17) in the first sheet having the films stacked thereon; filling the via-hole with conductive paste (18); peeling off the films from the first sheet (See Fig. 9D); and heating and pressing metallic foils (19) onto both surfaces of the first sheet after said peeling off the films (See Fig. 9F).

Regarding claim 6, AAPA discloses the first sheet (13) has a rectangular shape having a long-side direction and a short-side direction, and the long-side direction is orthogonal to the first direction of the first sheet (see Fig 6).

Regarding claim 7, AAPA discloses cutting a second sheet (16) while transferring the second sheet in the second direction (see Fig. 7).

Regarding claim 10, AAPA discloses the first sheet (13) has a side, which extends in the first direction (see Fig. 6).

Regarding claim 11, AAPA discloses the transferring a plurality of separate first sheets (13), each of which extends in the first direction, and wherein said sticking of the films (14) onto both surfaces of each of the separate first sheets.

Regarding claim 12, AAPA discloses continuous films (14) onto both surfaces of each of the separate first sheets (13) while transferring each of the separate first sheets (see Fig. 7).

6. Claims 1-7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of US Patent 7,063,768 to Tsujimoto et al.

Regarding claim 1, AAPA discloses a method of manufacturing a circuit board, comprising: transferring a first sheet (13), which extends in a first direction (202), in a second direction (201), so that the first direction of the first sheet is parallel to the second direction (see Fig. 6); and sticking films (14) onto both surfaces of the first sheet (see Fig. 7). However, AAPA does not teach transferring the first sheet in a third direction orthogonal to the first direction of the first direction of the first sheet. Tsujimoto et al teach the step of transferring the first sheet (L1) in a third direction orthogonal to the first direction of the first sheet (L1, see Fig. 22) while attaching the first sheet (L1) to another sheet (S2) in transverse direction for forming a laminate structure (L2) having good thickness precision (See Col. 19, lines 22-23 or Col. 37, line 34). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the AAPA by utilized the transferring first sheet in the third direction orthogonal to the first direction of the first sheet as taught by Tsujimoto et al to obtain a circuit board having good thickness precision.

Regarding claims 2-7 and 10-12, see the rejections above.

Response to Arguments

7. Applicant's arguments with respect to claims 1-7 and 10-12 have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant's arguments filed January 18, 2007 have been fully considered but they are not persuasive.

A) Applicants argue, "McMaster does not disclose sticking films onto both surfaces of the first sheet while transferring the first sheet in a third direction" (see "Remarks" page 7, last paragraph). The Examiner disagrees because McMaster's reference discloses films (300' and 302') being transferred in the third direction while being laminated to the first sheet (310) as shown in figure 24.

B) In response to applicant's argument that there is no suggestion or motivation to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Van den Akker provides the reason for transferring the first sheet (9) in the third direction orthogonal (top to bottom) to the first direction (left to right) while the first sheet being attached to another sheet (20) for obtaining the laminated structure having uniform thickness (see Fig. 7) and strength (see Col. 7, lines 53-57).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghai D. Nguyen whose telephone number is (571)-272-4566. The examiner can normally be reached on Monday-Friday (9:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (571)-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN
March 28, 2007


MINH TRINH
PRIMARY EXAMINER 3/28/07